

Appl. No. 09/997,392
Response transmitted May 21, 2004
Office Action mailed February 26, 2004

Attorney Docket 115/453

REMARKS

1. The application was filed with 52 claims, and claims 18, 22, and 37-46 have been withdrawn from consideration. Claims 1-17, 19-21, 23-36, and 47-52 are pending in the application. Claims 23-32 are allowed, and Claims 2, 3, 5-8, 14, 16, 21, 34-36, 48-50, and 52 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent format including all the limitations of the base claim and any intervening claims. Claims 1, 4, 9-13, 15, 17, 19, 20, 33, 47, and 51 are rejected. The Examiner is thanked for finding allowable subject matter in the application.

2. Examiner Wong and the undersigned attorney conducted an interview on Thursday, May 20, 2004, concerning this application. The Examiner is thanked for her courtesy in granting the interview. The references and Claims 1, 19, 33, and 47 were discussed, with most discussion centering on the references and Claim 1. The undersigned pointed out that the references did not describe or suggest heating cheese to temperatures above 33°C (91°F), with the greatest emphasis placed on a maximum temperature of 30°C (86°F). Applicants chose the claimed temperature of 130°F specifically because of the forty-degree gap between the claimed temperature and this prior art. The Examiner agreed to consider this difference when the undersigned filed the response to office action. Agreement on the claims was not reached.

3. Claims 1, 11-13, 17, 19, and 33 are rejected under 35 U.S.C. § 102(b) as being anticipated by an abstract from B.K. Nelson et al. published in *J. Anim. Sci.* vol. 78, Suppl. 1/*J. Dairy Science*, vol. 83, Suppl., Jan, 2000, p. 100, abstract 428, entitled, "Reduced fat cheese production by fat removal from aged cheddar cheese" ("Nelson Abstract").

The Nelson abstract discusses removal of fat from aged cheddar cheese. The Nelson abstract discloses centrifuging from 2,000 g to 23,500 g, and also discloses "tempering the cheese" to temperatures as high as 41°C (106°F), but does not describe or suggest heating and centrifuging at temperatures above 33°C (91°F). A "g" is one time

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the force of gravity. While the Abstract states that "at temperatures above 33°C both water and fat were removed," this is stated in the context of a maximum temperature, and also in the context of a required step of centrifuging from 2,000 to 23,500 g. Abstract, lines 18-19 and lines 12-14.

The abstract also states that "fat reduction of 30 to 50% was easily achieved at temperatures of $\leq 30^{\circ}\text{C}$ and the highest fat reduction achieved was 72%." Abstract, lines 19-21 (30°C is 86°F). Centrifugal force was varied from about 2,000 to about 23,500 g for times from 5 to 20 minutes, and "a 50% fat reduction was attained at 30°C [86°F] by either 23,500 x g for 5 minutes or 6300 x g for 10 minutes." Abstract, lines 13-14 and 21-22.

Independent Claims 1 and 33 of the present application include a step of warming cheese to at least 130°F , which is well above the highest temperature disclosed in the Abstract, and a full forty-four degrees above the optimal temperature disclosed. Claim 19 includes a step of warming cheese to at least 150°F , which is even further removed from the teachings of the Abstract, and is a full sixty-four degrees above the optimal temperature disclosed. A reference must be considered in its entirety, including portions that teach away from the claims. M.P.E.P. 2141.02 at 2100-122. Thus, Claims 1, 19 and 33, and dependent Claims 11-13 and 17 are not anticipated by the Abstract.

The optimal temperature taught by the Abstract, 30°C (86°F) is far below the temperatures claimed in Claims 1, 19, and 33. Thus, the reference does not disclose all the limitations of the claimed invention, and the rejection is overcome. Moreover, it would not be obvious to heat the cheese to temperatures above those in the Abstract, because it is well known that cheese is degraded by high temperatures. For instance, at least the texture of cheese is known to be degraded by processing at higher temperatures. That is likely the reason that the Nelson abstract mentions only "tempering" at 41°C (106°F), rather than a complete step of separation. Thus, the results of the inventors' experiments for the present invention are unexpected, and may be due to the high temperatures and low times used by the inventors. The Examiner is respectfully requested to withdraw the rejection under 35 U.S.C. § 102(b).

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4. Claims 1, 4, 9-13, 15, 17, 19, 20, 33, 47, and 51 are rejected under 35 U.S.C. § 103(a) as being unpatentable over a slide presentation presented by B.K. Nelson et al. at the American Dairy Association Annual Meeting, July 24-28, 2000 ("Nelson slide show"). The rejection states that the Nelson slide show discloses a method of preparing a reduced fat cheese by centrifugation, and that the slide show also discloses ingredient addition (p. 13) and gradually increasing temperatures (p. 8), where the selection of an elevated temperature as claimed would "obviously result in a higher percent fat removal." Office Action, p. 3, lines 11-12. The rejection also states that it would have been obvious to elevate the temperature of Nelson because the higher the temperature the higher the fat content removed, and that the selection and manipulation of temperature is well within the skill of the art, and is merely a matter of choice. Office Action, p. 3, lines 13-17.

Applicants traverse the rejection. A reference may be relied upon for all that it would reasonably have suggested to one skilled in the art. M.P.E.P. 2123 at 2100-61. The objective of the research in the slide show was to "optimize the fat removal process for an approximate 50% fat reduction." Nelson, p. 3. The reference does not describe or suggest any temperature above 32°C (90°F), because the objective of the research was to achieve a 50% fat reduction while achieving a Cheddar cheese with superior flavor. Nelson, pp. 7-8. Since the objectives of the research were reached, one would not be motivated to go outside the parameters disclosed. As shown in p. 8 of the Nelson slide show, over 60% of the fat was removed in one step, well over the stated objective.

Accordingly, the reference does not fairly suggest using a temperature above 32°C (90°F). This temperature is barely that experienced on a warm day. It would not be obvious to exceed this temperature in processing cheese because, as mentioned above, cheese is degraded by high temperatures, and the experimenters had achieved their goal. Thus, even though the graph on p. 8 of the reference suggests a high correlation of temperature with fat removal, the temperature range covered is very narrow, and, as mentioned above, one with ordinary skill in the art would know that cheese is not to be heated outside this range.

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For instance, those skilled in the art would not heat cheese according to the claimed process, because heating is known to break the emulsion in cheese and to degrade the cheese. Note p. 7 of the Nelson slide show, stating, "temperature control is critical to achieve the desired fat removal." Note also on p. 7, the statement that "control of force and time allow for small adjustments in the fat removal process."

This reference also requires centrifuging from 2,100 g to 23,500 g, while heating for 5, 10, or 20 minutes. Nelson, p. 4. Thus, the reference does not fairly suggest using centrifugation below 2,100 g or above 23,500 g. The reference suggests to one having skill in the art that centrifugation from 2,100 to 23,500 g should be combined with moderate heating, up to 32°C (90°F), to effect separation of fat from the cheese.

Independent Claims 1, 19, 33 and 47 are therefore not suggested by Nelson, because Nelson requires centrifugation at a minimum of 2,100 g, while Claim 33 requires merely centrifuging, not centrifuging at 2,100 g to 23,500 g. In addition, Nelson teaches a maximum temperature of 90°F, while the claims specify minimum temperatures of 130°F or 150°F. Thus, Nelson does not describe or suggest the temperature limitations of the claims, while requiring simultaneous centrifugation at very high g-force levels in order to effect the separation. In addition, the Nelson slide show does not describe or suggest the fractionation process of independent Claim 47, forming three phases (not two as in Nelson) and then making a cheese-flavored spread by mixing the aqueous phase with a fat to produce a cheese-flavored spread. Accordingly, Nelson does not describe or suggest the limitations of independent Claims 1, 19, 33 and 47.

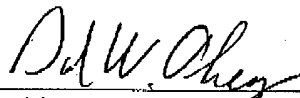
Limitations of the dependent claims are also not obvious in view of Nelson. For instance, Claims 9 and 51 specify centrifugation from about 10 to about 2,000 g, while Nelson requires a minimum of 2,100 g. Nelson, p. 4. Dependent Claims 4, 9-13, 15, 17, 20, and 51 are allowable because the claims from which they depend, Claims 1 and 47, are allowable. Nelson does not describe or suggest all the limitations Claims 1, 4, 9-13, 15, 17, 19, 20, 33, 47, and 51, and Applicants submit the rejection is overcome. The Examiner is respectfully requested to withdraw rejections under 35 U.S.C. § 103(a).

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5. Applicants thank the Examiner for allowing Claims 23-32, and for finding allowable subject matter in other claims if rewritten in independent format. Applicants also thank the Examiner for the courtesy of the interview on May 20, 2004. Applicants request the Examiner to withdraw the rejections and to allow all the claims of the present application. The Examiner is requested to contact the undersigned by telephone at the below-listed number if such contact will expedite the case or will be helpful to the Examiner.

Respectfully submitted,



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